



Operations Research

Division Newsletter

Spring 2015



Dear OR Division Members,

As we reach the end of the spring semester, we know that many of you are preparing for the IIE Annual Conference, which will be held in Nashville, Tennessee this year!

We hope that you will take a few minutes to look over some of the recent activities and achievements of our members. Our Annual Teaching and Best Paper awards are attracting many outstanding nominations and submissions. This year we are excited to announce our new Undergraduate Student Research Dissemination Award! We are also very fortunate that many of you are willing to serve the division as board members. Three new members will be joining the board this year.

Board Members

President:

Maria Mayorga

Immediate

Past President:

John Fowler

President-elect:

Mary E. Kurz

Directors:

Lihui Bai

Dan Bumblauskas

John Dulin

Nipa Phojanamongkolkij

Our Town Hall Meeting will be on Monday June 1 at 5pm in Room 208. This will be an excellent opportunity for you to learn more about the OR Division and get involved!



AWARD FOR EXCELLENCE IN THE TEACHING OF OPERATIONS RESEARCH

Dr. Balabhaskar (“Dr. Baski”) Balasundaram
2015 Recipient

Balabhaskar Balasundaram, from the School of Industrial Engineering and Management at Oklahoma State University has taught several OR classes in the last five years at OSU. He was nominated by his school head, Dr. Sunderesh Heragu, and his application was supported through letters from several students who took Baski’s classes and interacted with him in his role as the advisor for the student chapter of IIE. In his nomination letter, Heragu writes about Baski’s skills in teaching modeling: “Needless to say, engaging students in modeling —the art and science of creating optimization models is challenging for OR teachers, and at the same time of vital importance to create successful practitioners.”



Baski (left) is shown with his senior design student Andrea Lewis (who won 1st place at the IIE South Central regional conference) and his school head/nominator Sunderesh Heragu.

Andrea Lewis reinforces Dr. Heragu’s comments, saying: “I had the privilege of learning and growing under Dr. Baski, not just as a student, but as a person as well. His goal was not to trick us, but to teach us and encourage us to want to learn more. He didn’t force it on us, but his own demeanor and intelligence was all the encouragement and motivation that we needed. He is professional in his intelligence, but relatable in his teaching. He is specific in his instruction, but challenging in his inquiries of what we know so that we might take the leap and break down the barriers that are holding us back from fully understanding operations research. I look up to him as a professional, teacher and a person. He fully invested his time and talents into our senior design team, not only wanting us to finish, but to succeed to the highest level. He didn’t want us to just be good at serving the Food Bank of Oklahoma, he wanted us to be great. He didn’t want us to just solve an OR problem, he wanted us to feed more Oklahomans. He taught a mindset of learning, not just the facts of OR. He deserves this honor, and many more. He sees teaching as a lifetime profession, not just a semester class.”



OPERATIONS RESEARCH RACK BEST PAPER AWARD 2015

“Comparative Study of Lung Cancer Screening Policies and
Cost Impacts”

Co-authors: Ashley Anhalt and Jeffrey Kharoufeh

Ashley N. Anhalt is a Ph.D. student in the Department of Industrial Engineering at the University of Pittsburgh. Her research interests include applied probability and stochastic modeling with applications in health care and energy. A native of Tucson, Arizona, Ashley earned dual B.S. degrees in Applied Mathematics and Systems Engineering at the University of Arizona. She is a student member of IIE and INFORMS.



Jeffrey P. Kharoufeh is an Associate Professor in the Department of Industrial Engineering at the University of Pittsburgh. His recent research focuses on the modeling, analysis and optimization of renewable energy systems. Dr. Kharoufeh is a former President of the IIE Operations Research Division and former Department Editor of *IIE Transactions*. He currently serves as Associate Editor of *Operations Research* and Area Editor of *Operations Research Letters*. He is a Senior Member of IIE and the INFORMS Applied Probability Society.

The authors acknowledge, with gratitude, support from the VA Pittsburgh Health System (VAPHS). Special thanks are due to Robert Monte, Lanxi Tang, and Justin Bressi, who provided invaluable input related to the lung cancer screening process and costing data. We are also grateful to Claudia Henschke, M.D., Ph.D., at Mount Sinai Medical Center for fruitful discussions and guidance.

ISERC/AS OR 15
Health Care/ OR in
Medicine

JUNE 2

2PM

Room 208

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Operations Research

New Undergraduate Research Award!

Congratulations

Finalists in the New
OR Division
Undergraduate Student
Research
Dissemination Award

Congratulations to
Victoria Collier
University of
Tennessee, Knoxville
Co-author Dr. James
Ostriwsky

Shruthi Agrawal
Indian Institute of
Technology
Co-authors:
Deepak Agrawal,
Cheng-Bang Chen,
Kenneth Hutchinson,
Dr. Soundar Kumara
(Pennsylvania State)

GOAL: The goal of this award is to recognize scholarly work as well as ability to effectively communicate results from an undergraduate student or student teams.

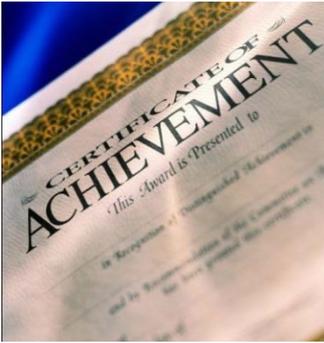
ELIGIBILITY: The first author of the paper must be a full-time undergraduate student at the time of submission. The paper must present original research conducted while the applicant was a student.

PROCESS: The winner is decided based both on their written paper and their oral presentation. Finalists are selected before ISERC, but the winner is announced at ISERC.

PRIZES: All finalists will receive a banquet ticket, and cash prizes for 1st and 2nd place in the amount of \$400 and \$200, respectively!

FINALISTS: This year the finalists presented to the judges via skype! The winner will be announced at the conference.

See more about the 2015 finalists below!



**OPERATIONS RESEARCH UNDERGRADUATE
RESEARCH DISSEMINATION AWARD
FINALISTS 2015**

Ms. Victoria Collier

“Symmetric Extended Formulations of the Bin Packing Problem”

University of Tennessee, Knoxville.

Presenting: May 31, 5PM, Room 208, ISERC/AS OR 5

This research considers instances of the bin-packing problem where bin sizes are not identical. A symmetric extended formulation of the bin-packing problem is created, resulting in computational advantage to a classical formulation. Victoria graduated from UT- Knoxville this May and will be attending medical school at UT Health Science Center starting in August of 2015. The paper is co-authored with Dr. James Ostrowski.



Ms. Shruthi Agrawal

“Robustness Analysis of Indian Airport Network: A Graph Analysis Approach”

Indian Institute of Technology, Bombay, India

Presenting: May 31, 8AM, Room 208, ISERC/AS OR 19

Novel graph theory techniques are used to identify the resilience of Indian Airport Network (IAN). This paper helps in identifying the airports which are essential to the integrity and robustness of IAN. Using graph measure and by simulating attack scenarios we show that IAN is robust under random attacks, but is weaker in case of strategic attacks. This paper builds ground for future work in identifying ways to improve the robustness of IAN. Shruti performed this research in collaboration with Laboratory of Intelligent Systems and Analytics (LISA <http://www2.ie.psu.edu/LISA/people.html>), Penn State. Co-authors: Deepak Agrawal, Cheng-Bang Chen, Kenneth Hutchison, and Dr. Soundar Kumara.





The OR Division Board fills three positions each year. This year we are welcoming Dr. Sandra Eksioglu, Dr. Proano, and Dr. Rainwater to the OR Division Board. Dr. Eksiouglu will serve as Vice President/President-Elect. Drs. Proano and Rainwater are the new incoming directors. Many thanks to Drs. Fowler, Bumblauskas, and Dulin, outgoing members of the board, for their service to the division.

Congratulations to

**Sandra Eksioglu,
Ruben Proano, and
Chase Rainwater**

newly elected
members to the
OR Division Board!

Sandra will serve as
president-elect in the
upcoming year. Ruben
and Chase will serve as
directors.

New Board Members:



Sandra Eksioglu
Clemson University



Chase Rainwater
University of
Arkansas



Ruben Proano
RIT

Current Board Members:



Maria Mayorga
North Carolina
State University



Mary E. Kurz
Clemson University



Lihui Bai
University of
Louisville



**Nipa
Phojanamongkolkij**
NASA Langley

Outgoing Board Members:



John Fowler
Arizona State
University



Dan Bumblauskas
University of
Northern Iowa



John Dulin
Enterprise
Ventures Corp.



Operations Research

What's happening in Nashville?

The upcoming IIE Annual Meeting and Expo features OR Tracks in both the Industrial and Systems Engineering Research Conference (ISERC) and the Applied Solutions Conference.

This year the OR Division was one of five selected to pilot joint scheduling ISERC and Applied Solutions sessions to facilitate collaboration between the two groups. Following a conference-wide evaluation process for Applied Solutions talks - which this year were submitted according to topic areas and industries as opposed to the traditional division-specific tracks - three were selected for presentation in Nashville. Each is 35 minutes in duration and can be seen in the Joint OR track on Sunday, May 31st. The ISERC talks within the OR Division include over 60 presentations in 18 sessions - including the joint sessions. More than 20 presentations included papers that were accepted for the ISERC Proceedings. Some of the notable OR-focused sessions include: healthcare, workforce planning, benefit and cost modeling, statistical optimization, as well as traditional OR theory such as network optimization, stochastic modeling and optimization, algorithms, heuristics, etc. We also include new undergraduate student award presentations within the sessions.

ISERC Track co-chairs: Nipa Phojanamongkolkij (nipa.phojanamongkolkij@nasa.gov) and Dan Bumblauskas (daniel.bumblauskas@uni.edu). OR Applied Solutions track co-chairs: John Dulin (dulinj@ctc.com) and John Fowler (john.fowler@asu.edu).



Operations Research

What are our students up to? Featuring NCSU

The creation of this newsletter certainly took a lot of effort. We would like to acknowledge the help and contribution of the IIE Student Chapter at North Carolina State University (NCSU)!

This year the NCSU student chapter took over 20 students to the Mid-Atlantic Regional IIE conference hosted by Clemson University. This is the largest group of students that the chapter has ever sent to the conference! The chapter was also very successful with two of their students taking home prizes in the technical paper competition.





Operations Research

What are our students up to?

The NCSU chapter had a busy year. From hosting company presentations, resume blitzes, socials, attending the regional conference, and volunteering at a local elementary school. The chapter started off the year with the annual ice cream social that gives student members the ability to network with faculty members and each other. The chapter held 15 chapter meetings this year. The chapter also focused on recruiting future IIE members by attending events put on by NCSU's College of Engineering. The chapter founded the IIE Ambassador Program that empowers IIE members to join chapter officers in recruiting events. The chapter is excited to continue their efforts in recruiting more Industrial and Systems Engineers to the organization.



IIE Officers 2014-2015

Pictured left to right: Anita Vila-Parrish(Advisor), Jenna Pennock, Kady Ward, Kayla Summers, Julianne Spencer